



PETROLEUM WATCH

California Energy Commission

September 2015

Recent Petroleum News and Outside Analyses

Prices

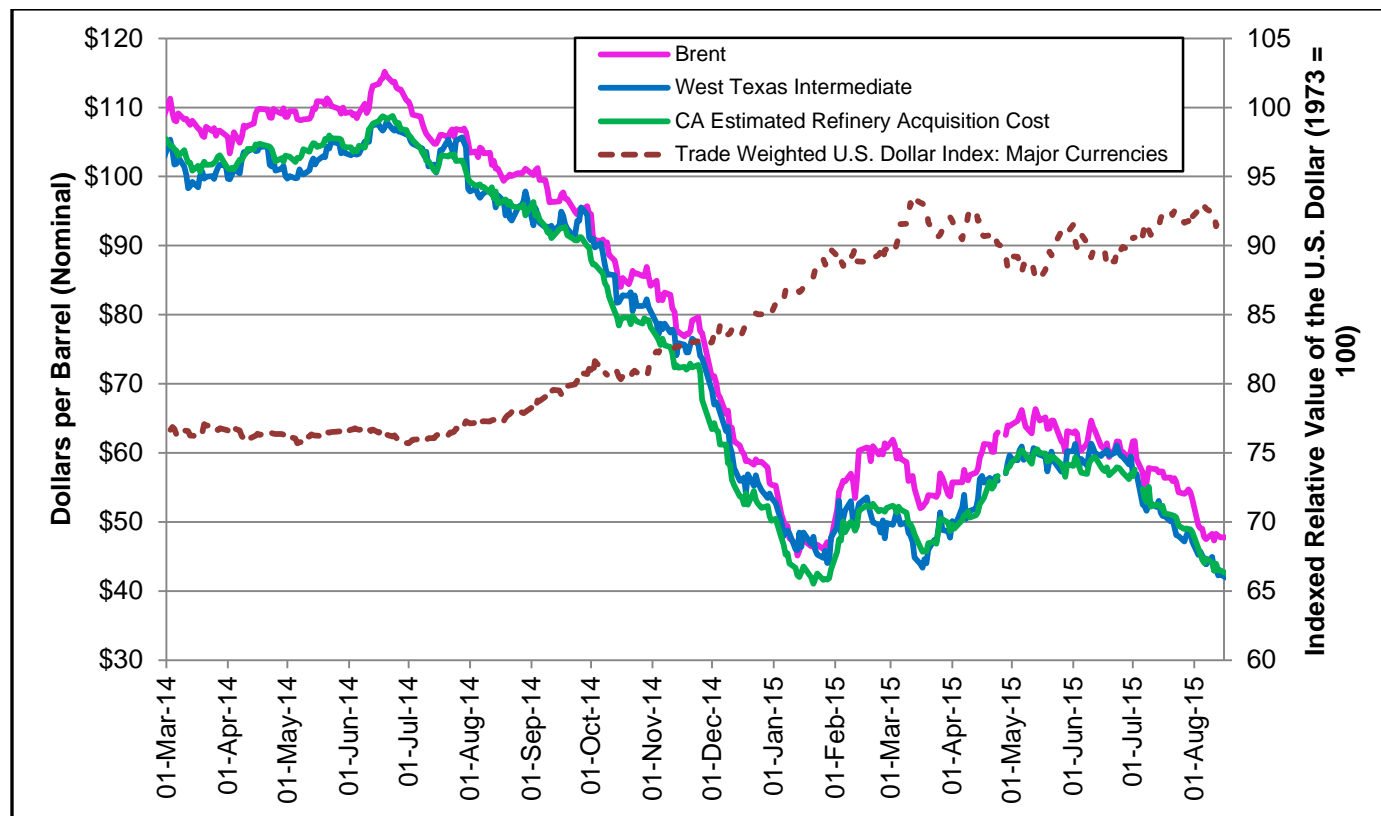
- **California Gasoline Prices:** The gasoline price difference between California and the rest of the United States fell from \$1.03 above the national average in July to \$0.87 during the third week of August.
- **California Diesel Prices:** The diesel price difference between California and the rest of the United States remained unchanged from July levels, at just \$0.33 during the week of August 17.

Refining News

- **Tesoro Carson Refinery:** Planned maintenance has been ongoing during July and was scheduled to last into mid-August.
- **Plains All American Crude Oil Line 903:** This line remains closed and reduces crude oil shipments to the Phillips 66 Santa Maria Refinery by roughly 44,500 barrels per day.
- **Phillips 66 Santa Maria Refinery:** The Santa Maria Refinery continues to operate at restricted levels, and Phillips has accelerated planned maintenance at the refinery.
- **Exxon Mobil Torrance Refinery:** Refinery crude oil processing units remains offline for maintenance. Minimal blending component processing is occurring, but crude oil processing will be offline until at least the September 8 South Coast Air Quality Management District hearing that may authorize use of a refurbished electrostatic precipitator.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, January 2014 to Present



Source: U.S. Energy Information Administration, Oil Price Information Service, and Federal Reserve Bank of St. Louis.

Crude oil prices continued to fall in August, although Brent prices leveled off in the final week of August. The California Estimated Refiner Acquisition Cost¹ (CA-RAC) of crude oil fell to \$42.57 a barrel on August 17. (See **Figure 1**.) The spread between West Texas Intermediate (WTI) and Brent crude oil has narrowed somewhat and was \$5.84 by mid-August. Crude oil prices are similar to the prices seen at the beginning of the year and are roughly half of what they were in August 2014.

From early June to the end of July, this downward trend in crude oil prices was matched by an increase in the purchasing power of the dollar on the international market, an increase of roughly 1 percent. In August, this trend ceased as the value of the dollar weakened slightly and crude oil prices continued to decrease.

¹ California estimated refiner acquisition cost is an estimate of the average price of crude oil paid by California refineries. It is created using California refinery input proportions of California crude, Alaskan crude, and foreign crude and multiplying them by the prices of San Joaquin Valley, Alaskan North Slope, and Brent crude oil, respectively.

Crude Oil Prices

August 2014 vs 2015 (Percent Change)

WTI	55% lower
Brent	53% lower
CA-RAC	55% lower

July 2015 Averages

WTI	\$51.16
Brent	\$56.56
CA-RAC	\$51.86

August 17, 2015

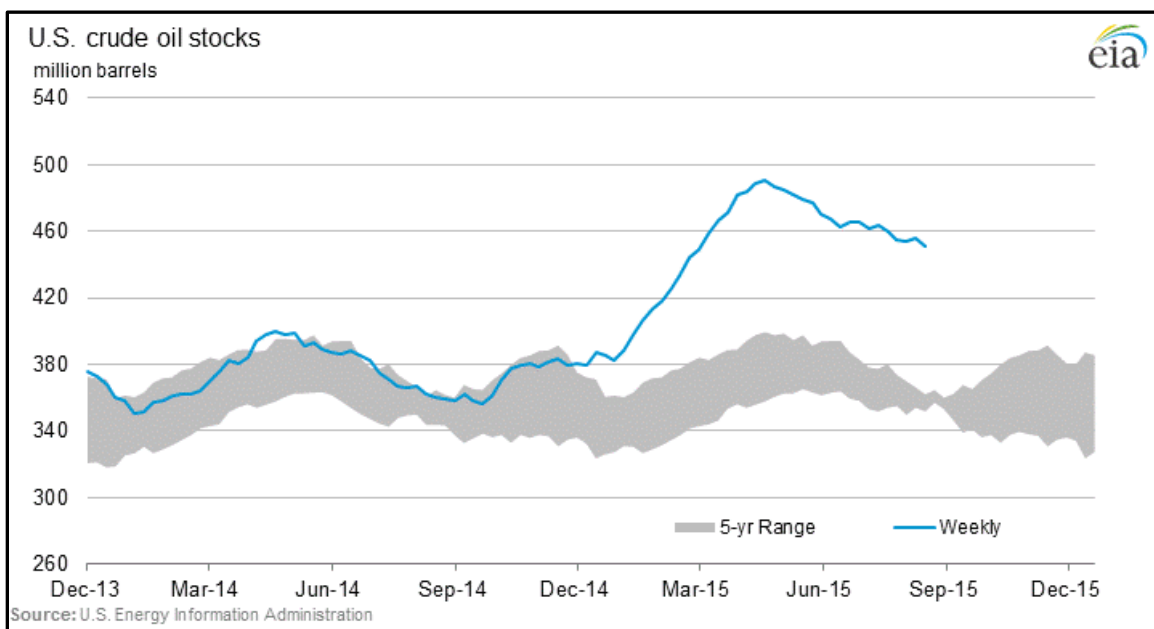
WTI	\$41.93
Brent	\$47.77
CA-RAC	\$42.57

Crude Oil Production and Storage

While the price of crude oil has fallen, U.S. production of crude oil has leveled off over the past month, and the amount of crude oil in storage has fallen. This is in part because U.S. refinery utilization remains high at 95 percent. Nevertheless, storage inventories remain well above 5-year averages, and production remains at high levels when compared to historical averages.

- U. S. crude oil output declined from 9.5 million barrels per day (bpd) in July to 9.4 million bpd during the first three weeks of August, according to U.S. Energy Information Administration (EIA) estimates.
- Imports of Canadian crude oil continue to be strong, averaging more than 3 million bpd during the first three weeks of August.
- Although crude oil inventories in the United States remain at unusually high levels, they continue to decline. (See **Figure 2**.) Storage levels have fallen from a peak of 491 million barrels in April to 451 million barrels on August 21, which is 25 percent higher than levels a year ago at 361 million barrels. If inventories continue to decline at an average of 2.4 million barrels per week from the April 24 peak, it will take 30 weeks, or until March 18, to reduce inventories to 380 million barrels (5-year band high).

Figure 2: U.S. Crude Oil Inventories, December 2013 to Present

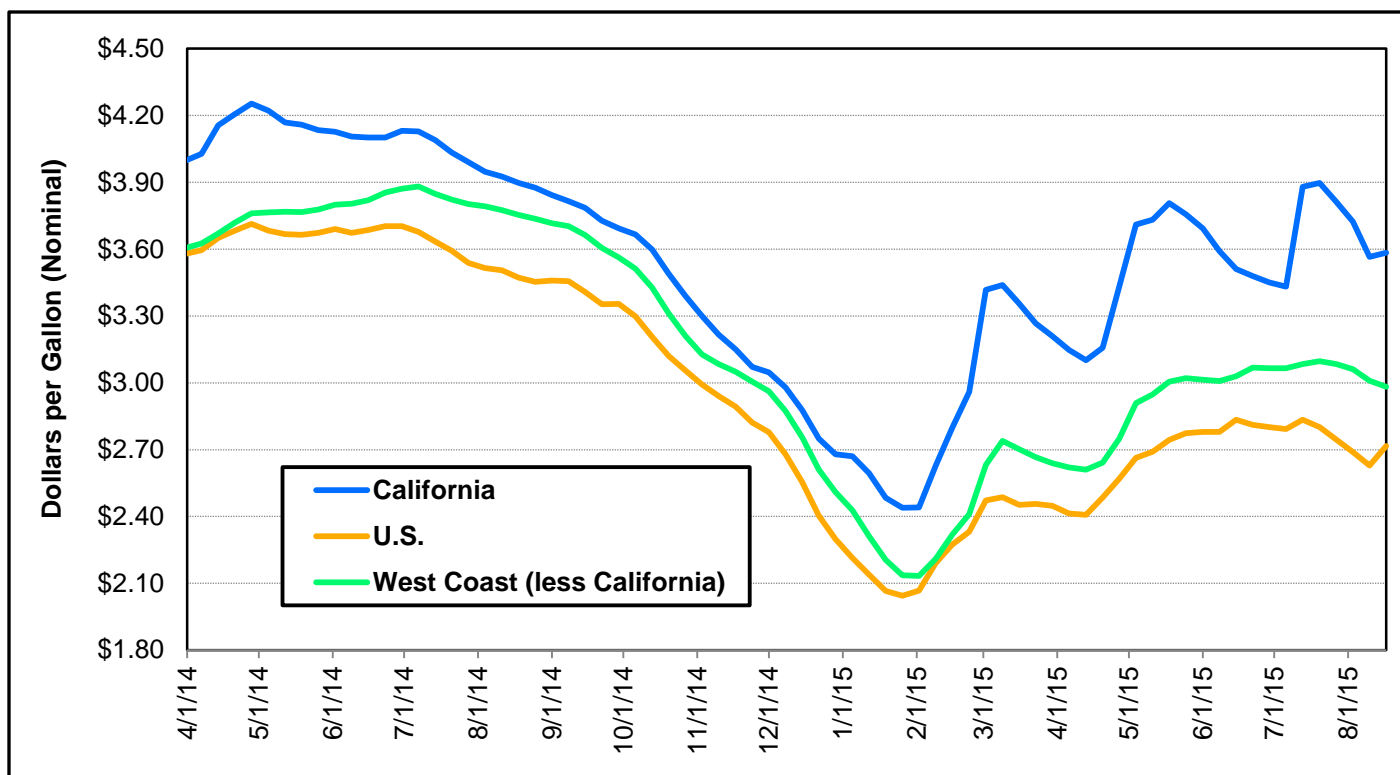


Source: U.S. Energy Information Administration.

- According to the most recent data from the Organization of the Petroleum Exporting Countries (OPEC), Saudi Arabian crude output has again set a new high for 2015, at 10.4 million bpd in July 2015. Total OPEC production has also set a new high for the year, at 31.5 million bpd.

Gasoline and Diesel Retail Prices and Margins

Figure 3: Regular Grade Gasoline Retail Prices, California vs. PADD5⁴ vs. United States



Source: U.S. Energy Information Administration.

After California gasoline prices reached a new 2015 high during mid-July, August prices dropped below the \$3.60 mark. Nonetheless, August's average price is well above the 2015 year-to-date average of \$3.30. (See **Figure 3**.) Even with the recent drop in prices and continued low crude oil prices, California gasoline prices remain only 7 percent lower compared to August 2014. This relative elevation in the California price continues to appear to be a result of an under-supplied Southern California region. Shown later in the publication (**Figure 10**), production and inventories in that region remain below norms. This has led to higher spot market prices (**Figure 6**) and increased imports (**Figure 13**).

Since the beginning of the year, due to the Southern California supply issues, California gasoline prices have diverged from U.S. gasoline prices. The difference peaked at 39 percent during the week of July 20. This has also widened the difference between California and West Coast gasoline prices to an average of \$0.61 in August 2015, a \$0.36 increase over the 2014 average difference of \$0.25.

Regular Gasoline Prices

August 2014 vs 2015 (Percent Change)

California	7% lower
U.S.	23% lower
West Coast	20% lower

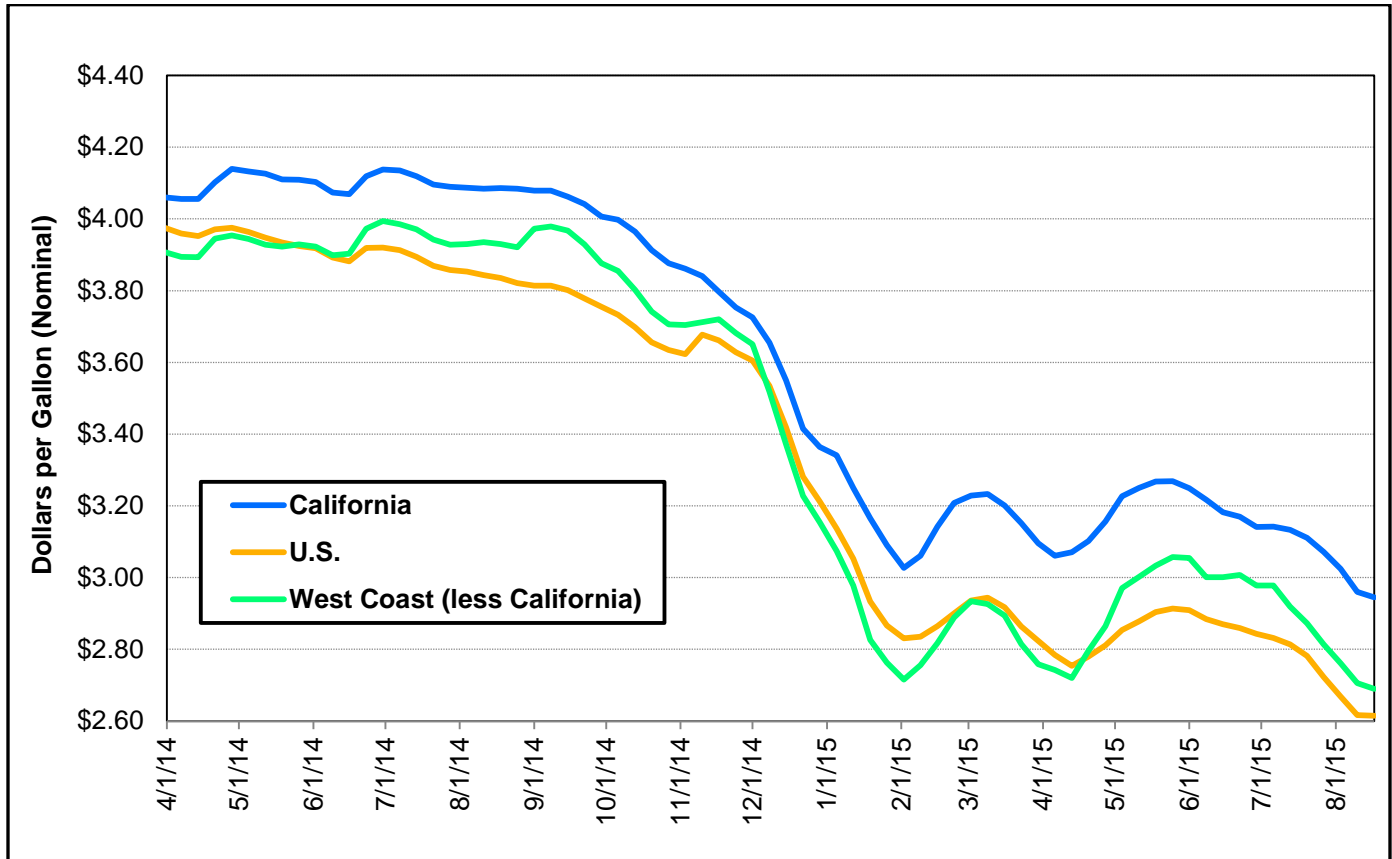
July 2015 Averages

California	\$3.62
U.S.	\$2.69
West Coast	\$3.02

Week of August 17, 2015

California	\$3.58
U.S.	\$2.72
West Coast	\$2.98

Figure 4: No. 2 Diesel Ultra-Low-Sulfur Retail Prices, California vs. PADD5 vs. United States



Source: U.S. Energy Information Administration.

Diesel prices in California have continued to decline since June and have set a new low for 2015 at \$2.94 during the week of August 20. (See **Figure 4**.)

Diesel prices continue to remain below gasoline prices, an unusual condition that has become ordinary in California fuel markets in 2015.

For the week of August 20, the difference between U.S. and California diesel prices stood at \$0.34. This is a \$0.03 rise in the difference from the June average but a \$0.02 decrease from the May average. When compared to the West Coast diesel price, the California average price is \$0.26 more, which is a \$0.02 increase since the May average and a \$0.08 increase since the June average.

Overall, the California diesel market is remarkably uneventful considering the volatility and high prices in the gasoline market. The August diesel price in California is 27 percent lower than August 2014, the West Coast price is 31 percent lower, and the national price is 31 percent lower. These changes largely result from a lower crude oil price that is being experienced by all refiners in the United States.

Diesel Prices

August 2014 vs 2015 (Percent Change)

California	27% lower
U.S.	31% lower
West Coast	31% lower

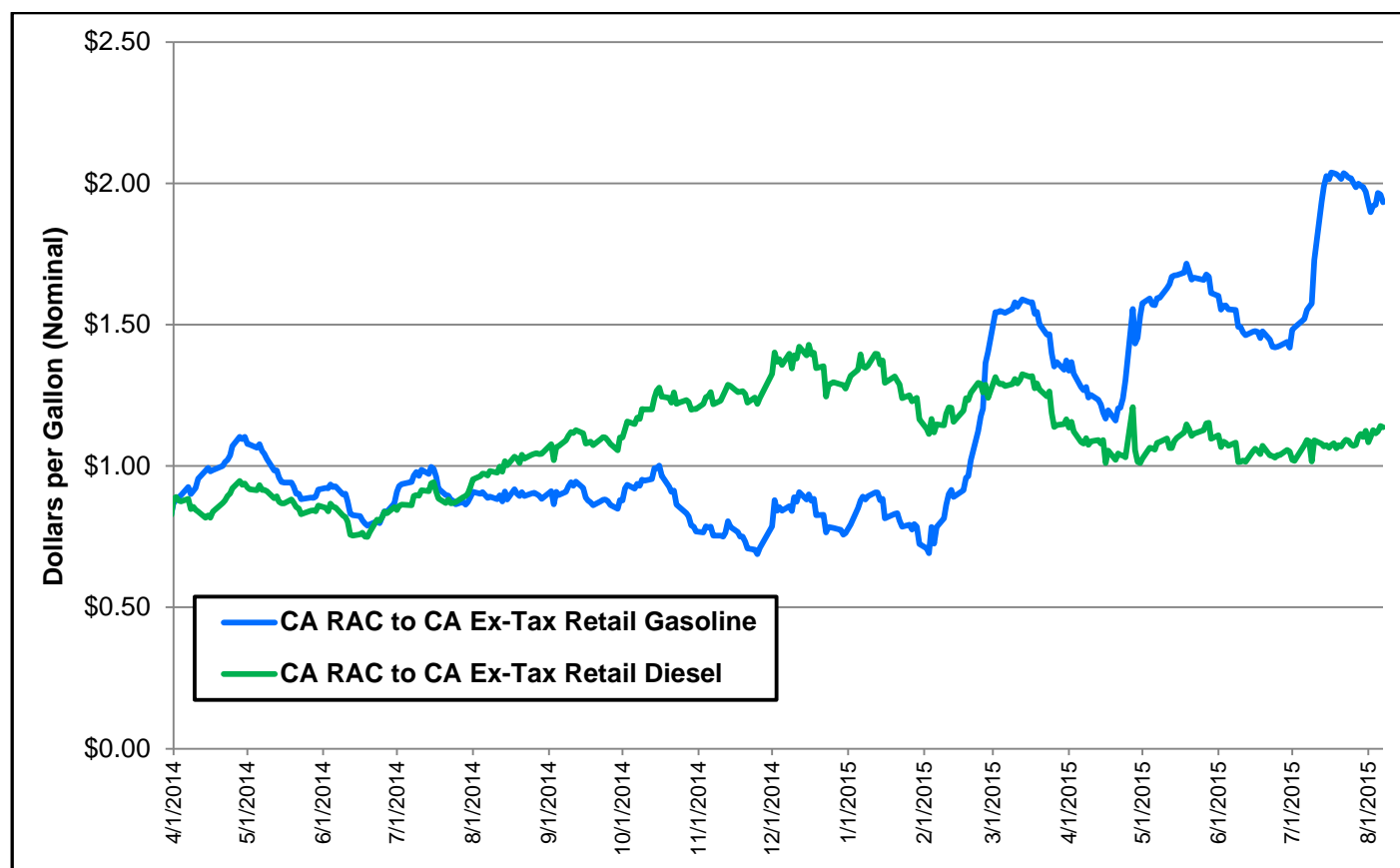
July 2015 Averages

California	\$3.11
U.S.	\$2.79
West Coast	\$2.90

Week of August 20, 2015

California	\$2.95
U.S.	\$2.62
West Coast	\$2.69

Figure 5: CA-RAC to Ex-Tax California Gasoline and Diesel Margins



Source: U.S. Energy Information Administration and Oil Price Information Service.

Gasoline margins continue to be much higher than diesel margins, as seen in **Figure 5**. The CA-RAC-to-ex-tax retail margin² is just off the 2015 highs and has fallen back below \$2.00. In 2014 this margin averaged \$0.82 a gallon, with current values representing a doubling of that value. The diesel margin has increased slightly but remains just above the \$1.00 line. This margin is roughly similar to the 2014 average of exactly \$1.00 (\$1.14 on August 17, 2015).

The three Southern California refinery outages and maintenance events continue to be the dominant factor in determining gasoline margins. As the summer driving season ends and the refineries gradually come back on-line, there may be some decline in the gasoline margins. Starting in November, the switch to winter blend gasoline should also provide some pricing relief.

Crude-to-Retail Margins

July 2014 vs 2015 (Percent Change)

Gasoline	104% higher
Diesel	21% higher

July 2015 Averages

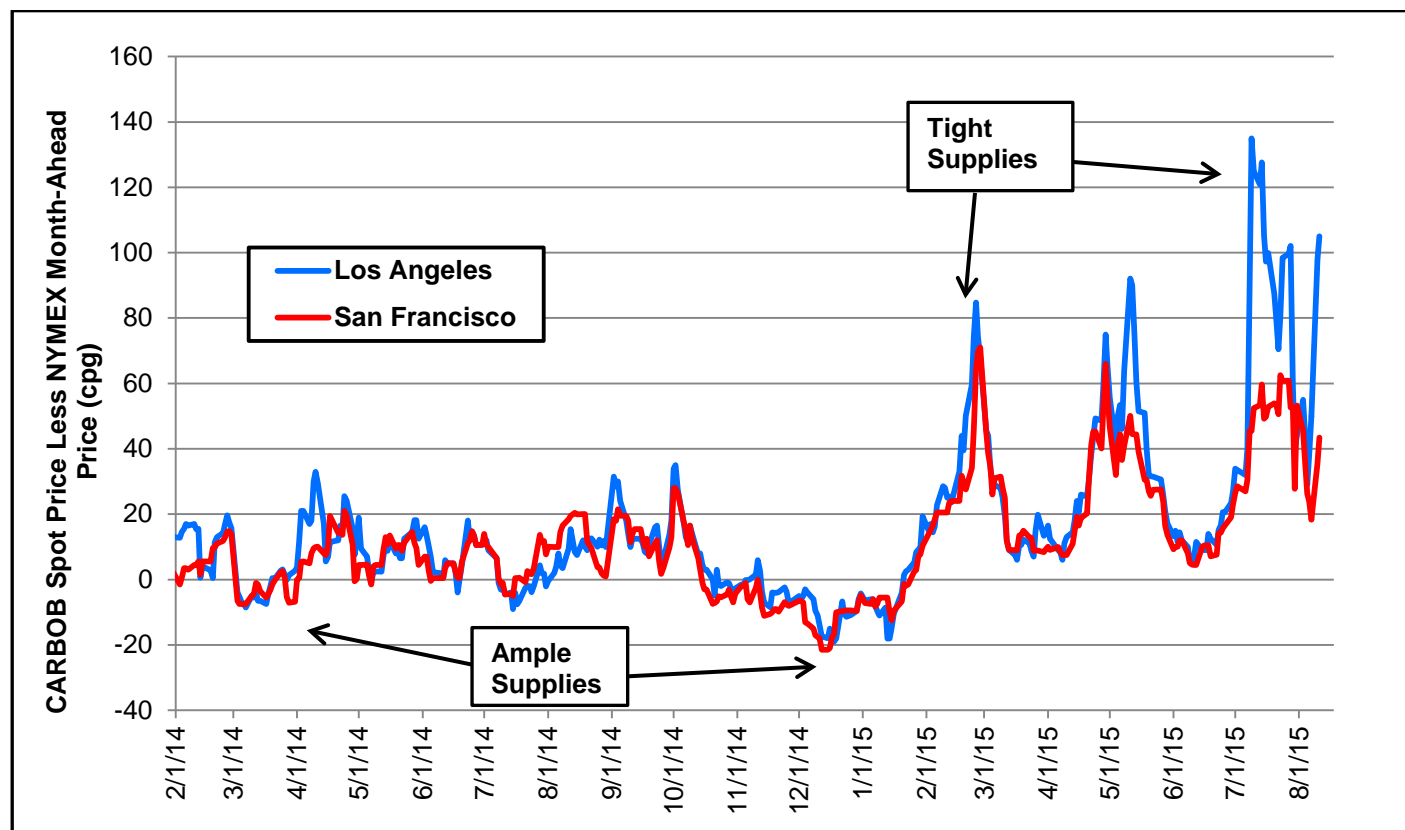
Gasoline	\$1.89
Diesel	\$1.08

August 17, 2015

Gasoline	\$1.93
Diesel	\$1.14

² The RAC-to-retail margin refers to the difference between the retail price and the refiners acquisition cost for crude oil. Thus, it includes all costs of producing gasoline or diesel. "Ex-tax" refers to the removal of all California taxes on the price of fuel, which is done to remove any distortions from taxes that may affect this calculation.

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and Oil Price Information Service.

The Los Angeles-to-New York Mercantile Exchange spot-futures spread³ has been extremely volatile since early July but is down in early August from the July highs. (See **Figure 6**.) This index has shown extreme variation over the last three months, reaching a high of \$1.35 and then decreasing to \$0.29 on August 5, before increasing to \$1.05 on August 11. Low Southern California production and inventory levels appear to be driving these changes to attract additional imports into Southern California from Northern California and Washington.

The San Francisco-to-NYMEX spot-futures spread remains much smaller. This index reached a 2015 high of \$0.71 in late February and reached a high of only \$0.63 in July. Southern California troubles appear to be bleeding over into this market though, as the large increases correspond to the large increases in the Los Angeles index.

Gasoline Spot-Futures Spread

August 2014 vs 2015 (cents)

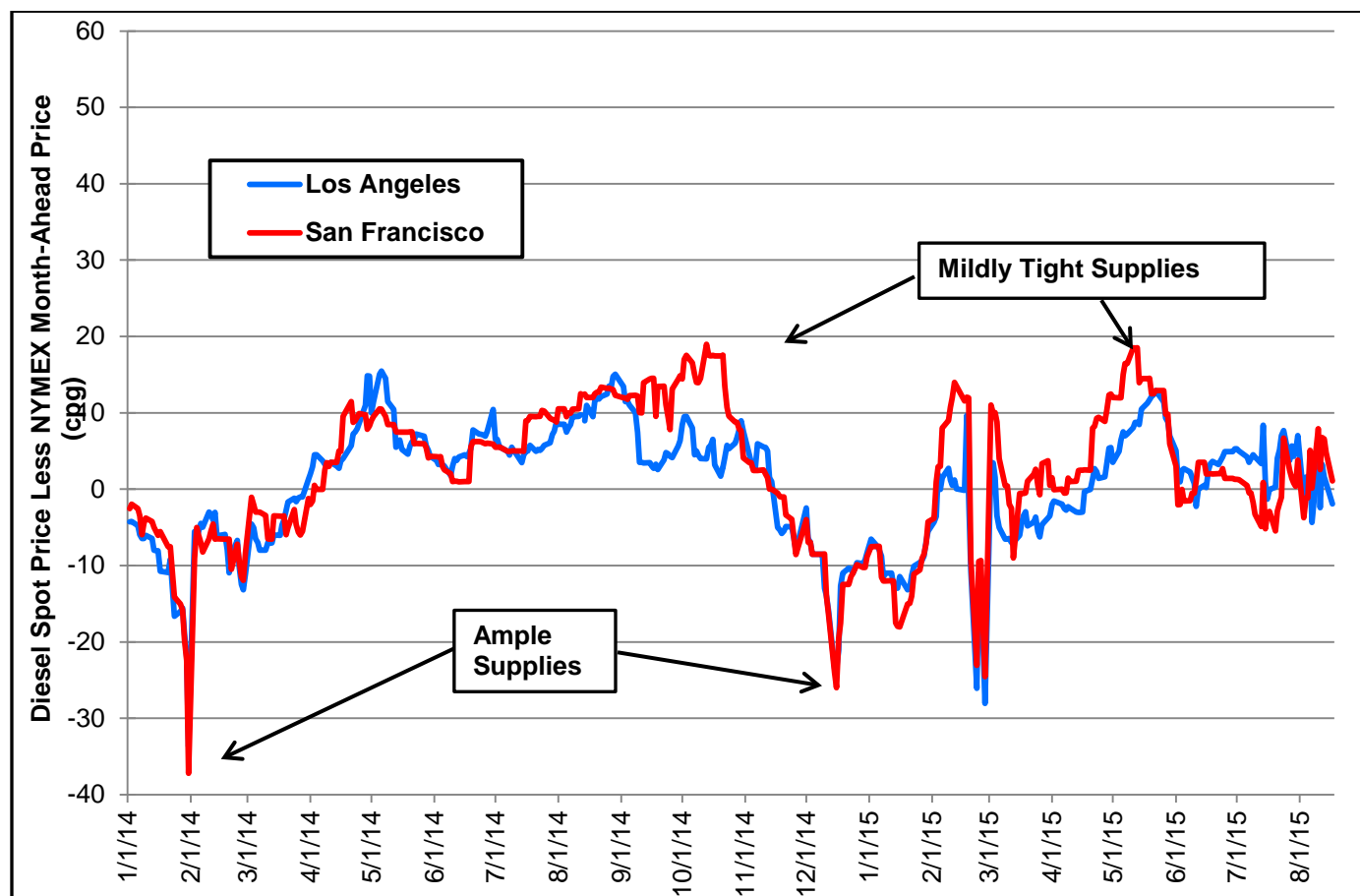
Los Angeles	51¢ higher
San Francisco	21¢ higher

July 2015 Averages

Los Angeles	82¢
San Francisco	48¢

³ A higher spread between the state's spot fuel prices and the NYMEX futures price indicates supplies are tighter in California, and a lower or negative spread indicates the market is relatively well-supplied compared to the rest of the country. The NYMEX futures price reflects the national market, while California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) is a gasoline blend unique to California and is usually sold at a premium to the NYMEX.

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and Oil Price Information Service.

Although somewhat volatile, the diesel market remains balanced to the NYMEX in August. (See **Figure 7.**) There has been little change since last month or in comparison with year-ago spreads. Even with all of the Southern California refinery troubles, diesel has remained relatively unaffected as these outages and maintenance events have affected primarily gasoline production units. Combined with the fact that California is a primarily gasoline-consuming state (14.7 billion gallons of gasoline versus 2.8 billion gallons of diesel consumed in 2014), diesel supplies are easier to resupply due to the smaller demand, thus appearing to be less influenced by the current refinery difficulties.

Diesel Spot-Futures Spread

August 2014 vs 2015 (cents)

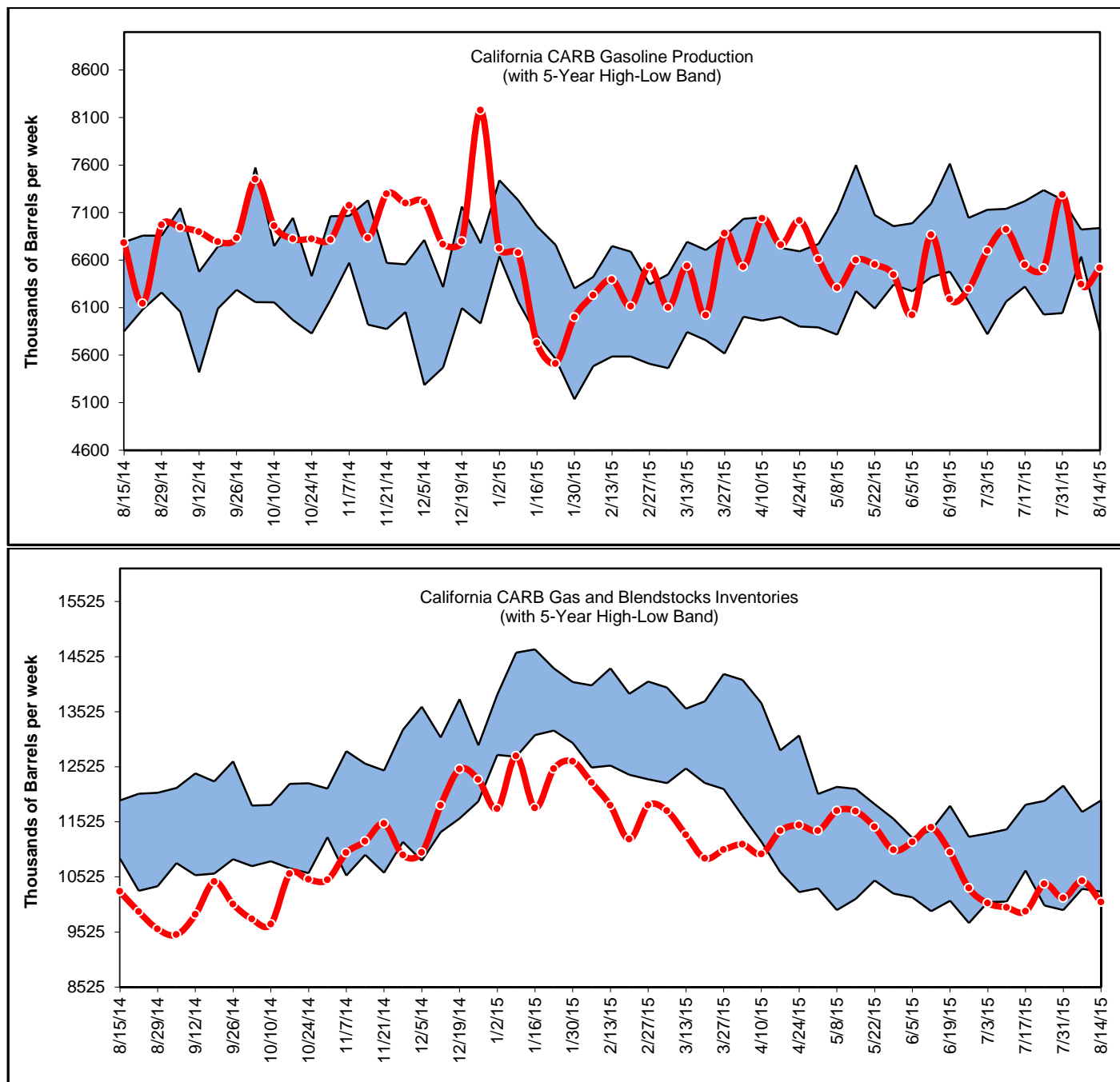
Los Angeles	10¢ lower
San Francisco	9¢ lower

July 2015 Averages

Los Angeles	4¢
San Francisco	-1¢

California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

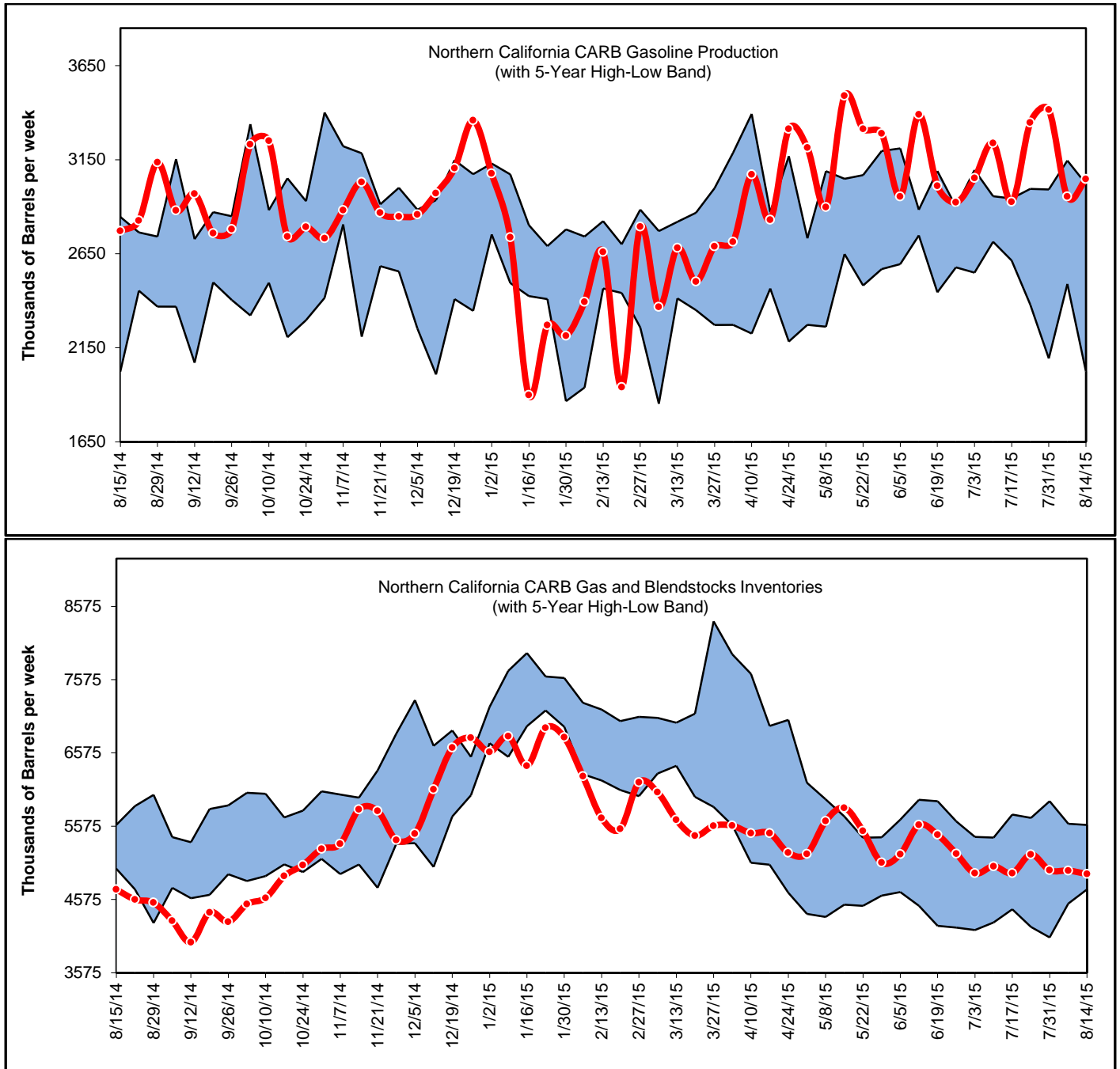


Source: Petroleum Industry Information Reporting Act data.

Weekly California gasoline production has remained between 6 million and 7.3 million gallons produced since the first week in February 2015. While on the low end of the 5-year high/low band, June and July production averaged 6.3 and 6.8 million of gallons produced per week, which are both well above the lowest production point seen in 2015, 5.5 million gallons in January.

Since late June, gasoline inventories in California have been near 5-year lows. These totals are a direct result of the low Southern California inventory numbers seen in **Figure 10**.

Figure 9: Northern California Gasoline Production and Inventories

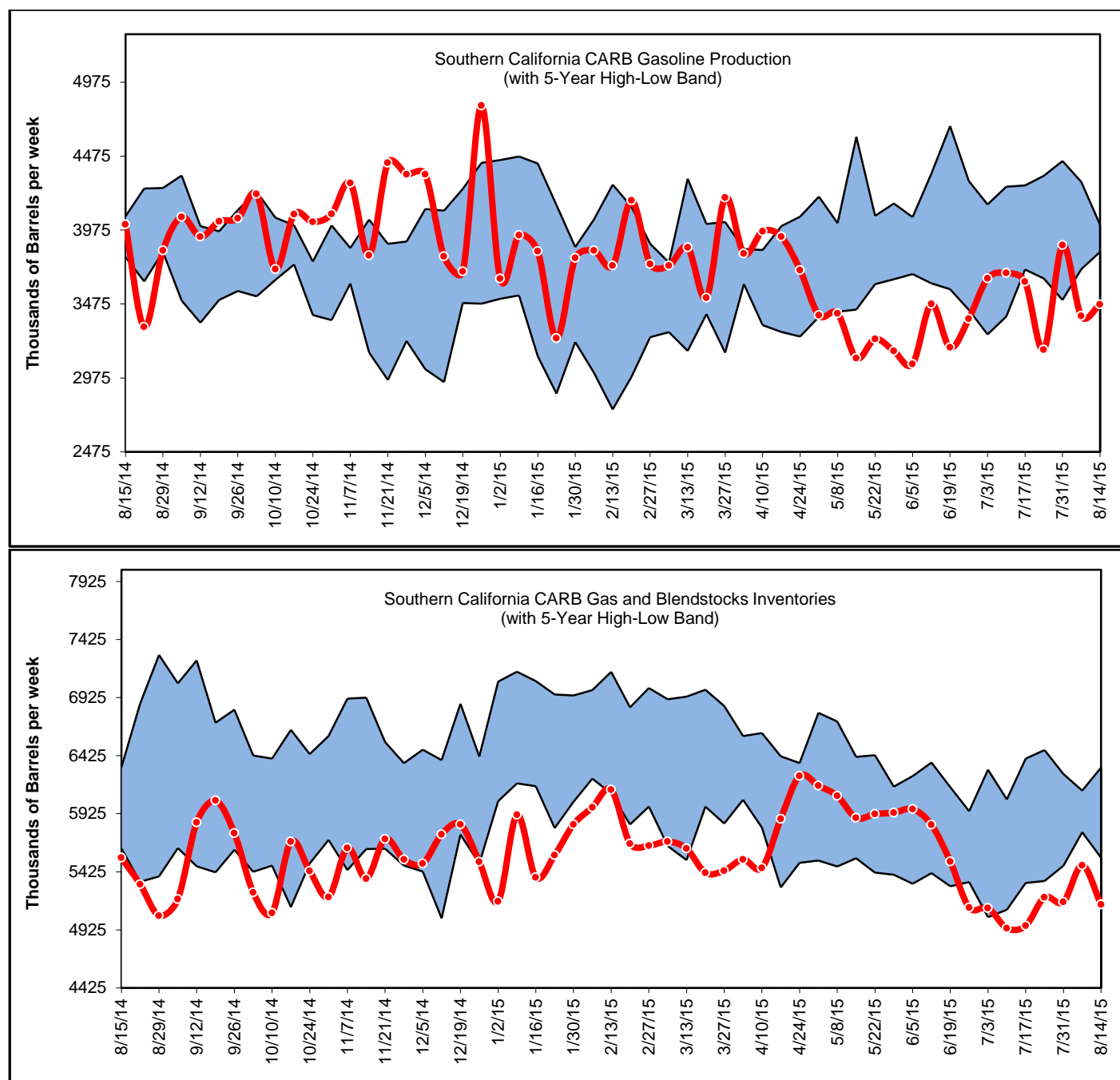


Source: Petroleum Industry Information Reporting Act data.

While the overall California gasoline production picture has seemed rather normal, since mid-April production by Northern California refineries have maintain levels that often exceed 5-year highs.

Even with the increase in production, inventories in the Northern California area have held steady at 5 million barrels per week since the beginning of July. This is an inventory level that is slightly higher than the same time last year as inventories were falling in mid-August 2014 from a 4.7 million gallon mark on the week of August 15, 2014.

Figure 10: Southern California Gasoline Production and Inventories

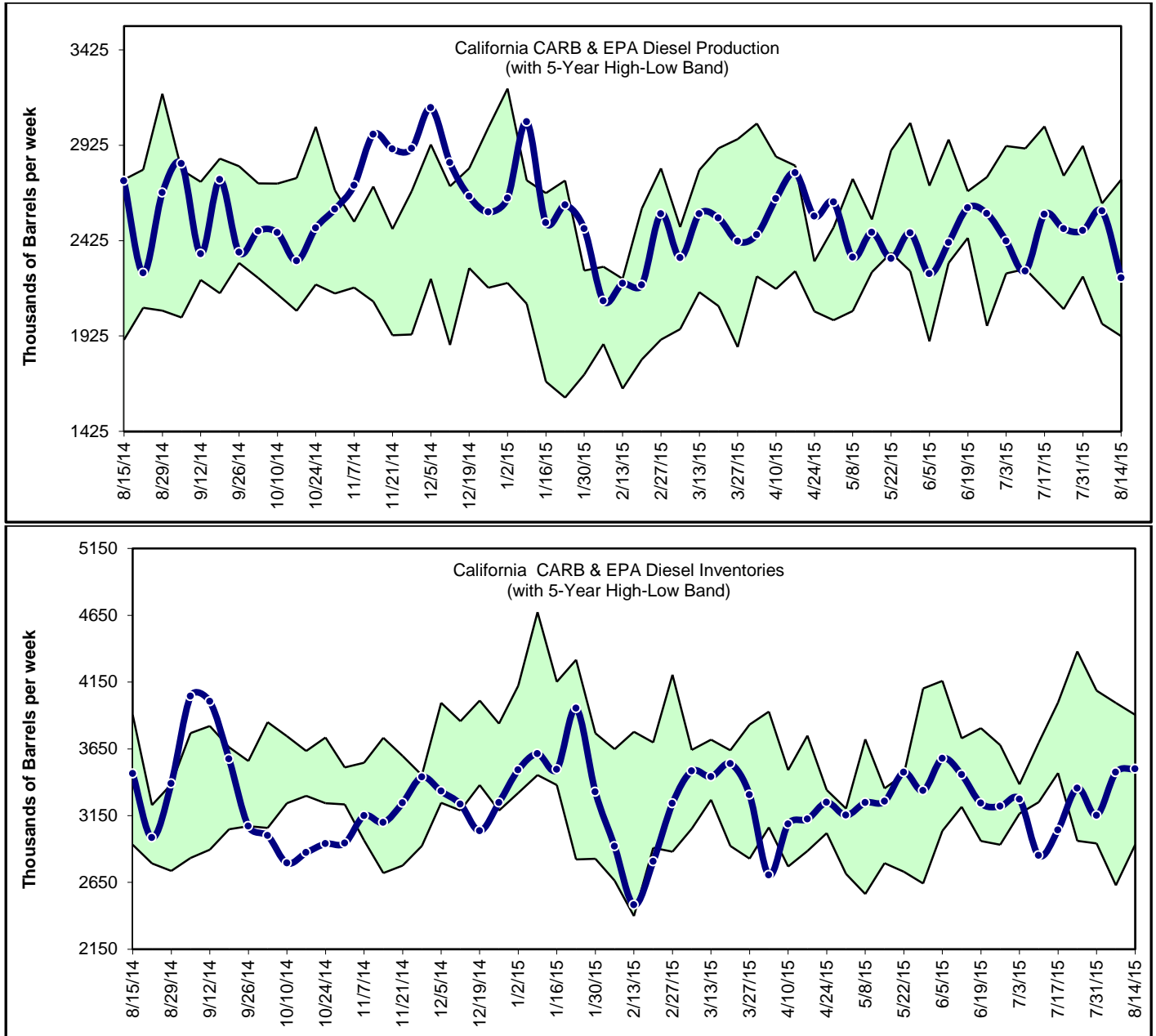


Source: Petroleum Industry Information Reporting Act data.

Southern California gasoline production, on the other hand, has been quite low. This is likely still due to the ExxonMobil Torrance refinery remaining off line, the Tesoro Carson refinery entering planned maintenance at the end of July, and the reduced runs at the Santa Barbara Phillips 66 refinery resulting from pipeline difficulties. High Northern California production volumes are offsetting low production in the south, leaving total California production figures at normal levels. The cost of moving gasoline from Northern California to the south is likely contributing to the higher price premium in Southern California.

This tight market in the south has also resulted in a run on gasoline inventories in the region, which are setting new 5-year lows.

Figure 11: Diesel Production and Inventories



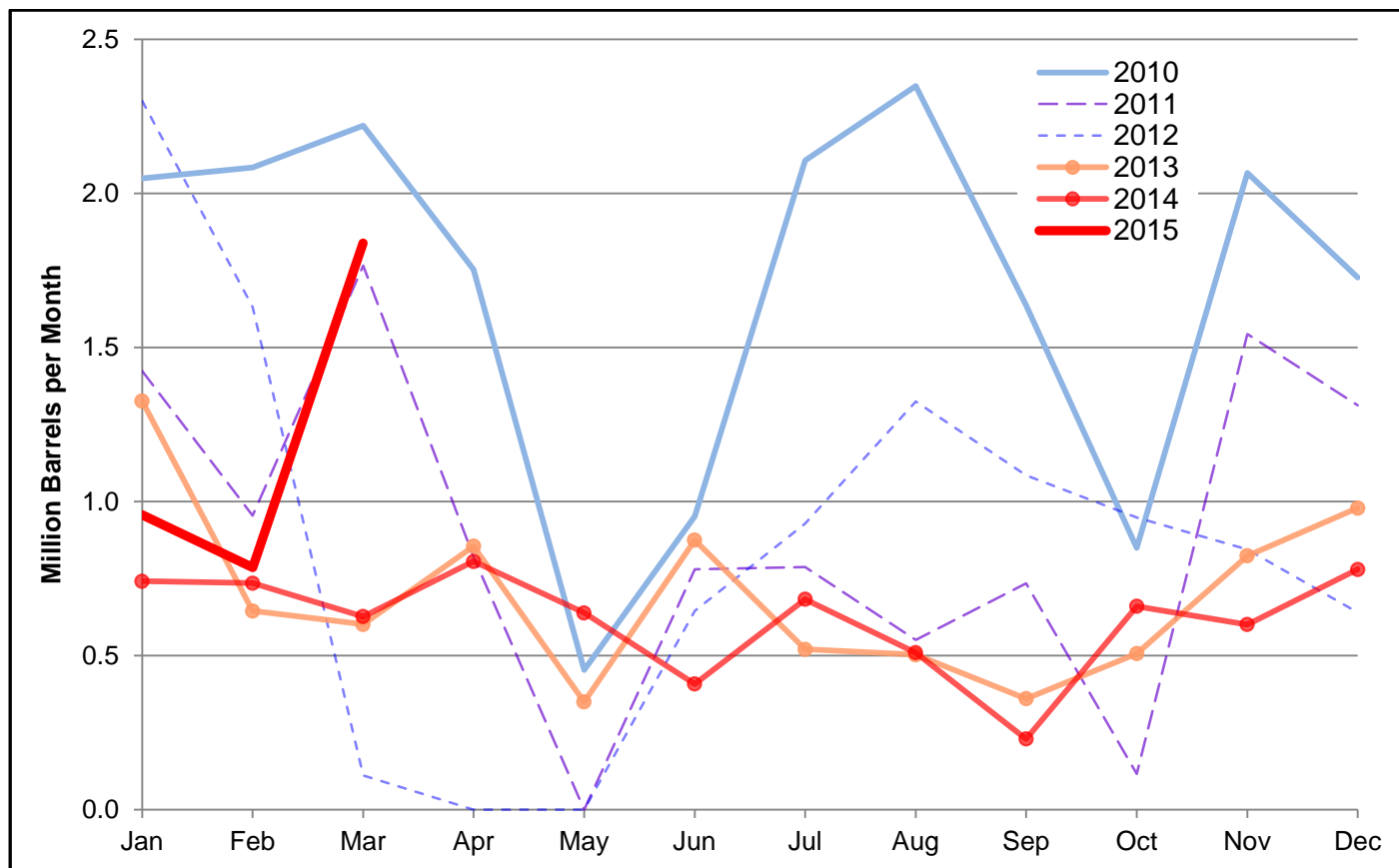
Source: Petroleum Industry Information Reporting Act data.

Diesel production and inventories remain healthy in California. Production volumes in California have fluctuated around the 5-year high-low band average of 2.4 million barrels per week in 2015. First quarter and partial second quarter California diesel sales figures from the Board of Equalization show current consumption of diesel to be relatively comparable to the same time last year. With unchanged demand and average production of diesel, it is no surprise that diesel prices remain steady in the California market.

Like production, diesel inventory in 2015 has remained noticeably flat around the 3.15 million gallon mark. This lack of movement in inventories suggests that the California diesel market is well supplied, helping diesel price stability.

California Gasoline Imports

Figure 12: California Gasoline Imports, 2010 to 2015



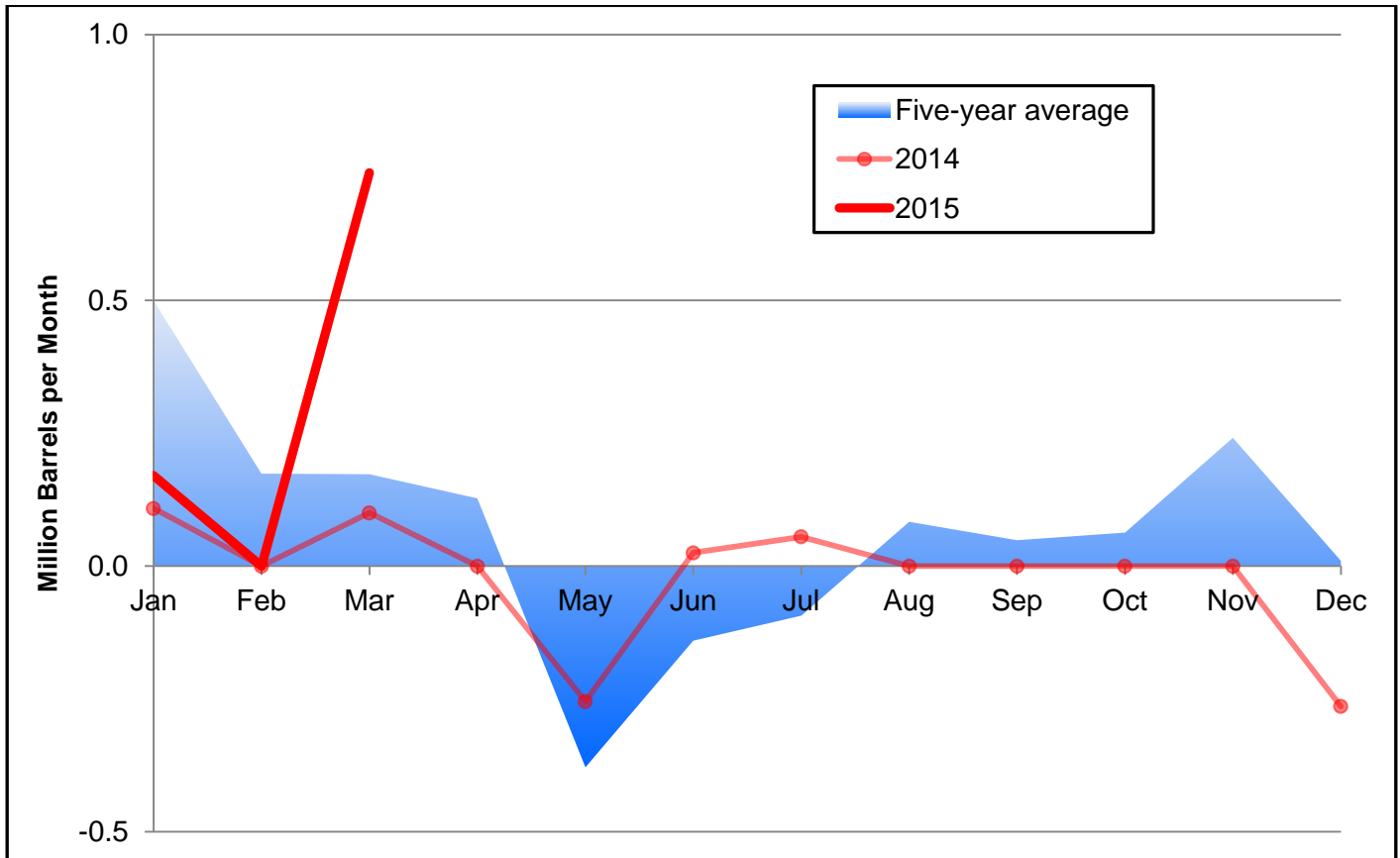
Source: California Lands Commission, Port Import Export Reporting Service, Petroleum Industry Information Reporting Act

Statewide gasoline imports have declined in level and volatility since 2010, when imports peaked at 2.3 million barrels. Import levels in 2013 and 2014 generally stayed between 500,000 and 1 million barrels in 2010. Gasoline imports in 2011 and 2012 were still volatile but were significantly lower than in 2010. (See **Figure 12.**)

In California, high levels of gasoline imports generally occur when there is an unplanned refinery outage for a significant period. After the refinery comes back on line, imports return to the usual lower levels.

California gasoline imports started at a typical low level in 2015, but increased sharply in March. Imports have not been this high since 2012. Data for the second quarter will likely show that imports have remained high because the refineries had not come back on-line.

Figure 13: Southern California Gasoline Net Imports (Imports Minus Exports)



Source: California State Lands Commission, Port Import Export Reporting Service, Petroleum Industry Information Reporting Act

California inventories of gasoline are typically low in February, March, and April. In February, however, the Torrance refinery outage disturbed this pattern. The result was a jump in both Southern California gasoline imports, to 740,000 barrels, and the retail price of gasoline. As can be seen in **Figure 13**, the Southern California gasoline market is usually tightly balanced, with imports of gasoline rarely reaching the 500,000 barrel mark. In fact, for six months of 2014, there were neither imports nor exports of gasoline in Southern California, and over the previous 5 years this region has averaged more exports than imports in May, June, and July.

Consequently, refinery outages, like those seen in 2015, can cause immediate shortages and a resulting spike in imports. The February refinery explosion in Torrance clearly had that effect, as with Southern California imports spiking in March 2015, directly after the explosion. Unfortunately, California is far from other sources of additional imports, with typically three or more weeks needing to pass before a tanker with a gasoline cargo arrives. Imports from Northern California can often help, as seen with the increased production in Northern California (**Figure 9**), but this still leads to increased prices as United States Jones Act vessels are needed to make this transfer which are often in scarce supply.